THE MAGAZINE OF THE WORLD HEALTH ORGANIZATION

JANUARY-FEBRUARY 1992

HEART HEALTH

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Cover photo: "Heart C", painting by Paul Giovanopoulos, reproduced by courtesy of Louis K. Meisel Gallery, New York

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World Health ■ January–February 1992
IX ISSN 0043-8502

Correspondence should be addressed to the Editor, *World Health* Magazine, World Health Organization, CH-1211 Geneva 27, Switzerland, or directly to authors, whose addresses are given at the end of each article.
For subscriptions see order form on page 31.

World Health is the official illustrated magazine of the World Health Organization. It appears six times a year in English, French, Portuguese, Russian and Spanish, and four times a year in Arabic and Farsi. The Arabic edition is available from WHO's Regional Office for the Eastern Mediterranean, P.O. Box 1517, Alexandria 21511, Egypt. The Farsi edition is obtainable from the Public Health Committee, Iran University Press, 85 Park Avenue, Teheran 15875-4748, Iran. The Russian edition can be obtained from Medicina Publishing House, Petrovenigski per., 6/8, 101000 Moscow, Russian Federation. A German version is obtainable from the German Green Cross, Schuhmarkt 4, D-3550 Marburg, Germany.

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Editorial

World Health Day 1992
Heartbeat – the rhythm of health

Dr Hiroshi Nakajima, Director-General of the World Health Organization.

There is a bonus to preventing cardiovascular diseases: the life-styles recommended for healthy hearts go a long way to preventing other ills. Such life-styles should start in childhood.

Among the diseases most feared the world over are heart attacks and stroke. And for good reason. These diseases, of the heart and arteries, account for a quarter of the total number of deaths each year, taking an estimated 12 million lives annually. Worldwide, they kill more people than any other single disease, and disable millions. Even worse, many victims are under the age of 65. Given today's increased life span, these deaths are premature, causing anguish in families and loss of the talent that many countries need for economic development.

Cardiovascular diseases were once thought of as afflicting exclusively industrialized nations. Today, as developing countries modernize, as they are able to control communicable diseases, and as the life expectancy of their people increases, this is unfortunately no longer true.

Developing countries are still suffering from other forms of heart ailment which are not prevalent elsewhere, such as rheumatic heart disease, which is linked to poverty, and from a heart ailment transmitted by Chagas disease, a parasitic malady that afflicts about 17 million people in Latin America. To these countries the diseases of life-style are an added burden on scarce resources.

Healthy life-styles should start in childhood

Fortunately, cardiovascular diseases, while still the top killer, are on the decline in a number of industrialized countries, notably countries in western Europe, North America, Australia and New Zealand, where it has been shown that through diet, exercise – particularly walking, an activity for all ages – and no tobacco, they can be prevented. In addition, there is a bonus to preventing cardiovascular diseases: the life-styles recommended for healthy hearts go a long way towards preventing other ills. Such life-styles should start in childhood.

By devoting World Health Day 1992 to the theme of heart health, it is the aim of the World Health Organization to increase public awareness of the worldwide dimensions of cardiovascular diseases, and to sound an alarm against their spread.

WHO also urges governments to give to their health authorities the funds, the equipment, and the staff to turn the tide against heart diseases. Through prevention, six million lives can be saved each year.

Our goal for the 2000s must be cardiovascular health for everyone.■

Hiroshi Nakajima, M.D., Ph.D.

READEX
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Cardiovascular diseases: the world's Public Health Enemy No. 1

Ivan Gyarfas

Cardiovascular diseases are today the world's Public Health Enemy No. 1. Why?

Firstly, they account for 12 million deaths – more than any of the infectious diseases – and disable millions more every year. About half this figure (6 million) are dying from cardiovascular diseases in the developing countries. A quarter of all deaths throughout the world are attributable to cardiovascular diseases, which suggests that we are close to a global coronary catastrophe. In industrialized countries, they are the first cause of mortality, accounting for 50% of all deaths; in developing countries, they rank third, accounting for about 15 to 16%.

Secondly, it has been projected that there will be more deaths from cardiovascular diseases than from a number of infectious diseases combined – among them diarrhoeal diseases, schistosomiasis, tuberculosis, measles and whooping cough – in the Third World in just a decade. This will make coronary heart disease and stroke the leading cause of deaths in developing countries, striking mainly the managerial and professional classes whose skills are greatly needed for economic growth and development. The projections show that Latin America will report two to three times more deaths from cardio-vascular diseases than from infectious diseases, and Asia one and a half times more; only in Africa and the Middle East there will still be more deaths from the age-old killers such as infectious diseases.

- In eastern Europe, there has been an upward swing in mortality from cardiovascular diseases over the past two decades.
- In North America, western Europe, Japan, Australia and New Zealand, despite declining trends since the 1970s, the cardiovascular diseases are still the top killer.
- According to WHO estimates, one half of all deaths worldwide are preventable – six million lives can be saved annually.

Healthy living is the least expensive way of prevention

There are no vaccines against diseases of the heart and arteries. There is only prevention. For developing countries as well as developed countries, the most practical and least expensive way of prevention is not through medicines but through healthy living.

Over the past three decades in the USA, mortality from cardiovascular diseases declined by 40%. One third of that decline is attributable to technological advances such as clot-dissolving and anti-hypertensive drugs, intensive care units, coronary angioplasty and bypass surgery. Two-thirds are attributable to measures such as diets to reduce calories, fats and salts, improved control of hypertension, the growing popularity of fitness exercises, and smoking cessation – all of which have nothing to do with drugs. These facts underscore the importance of non-pharmacological prevention and the need for public health authorities to put new emphasis on preventive rather than curative medicine – beginning with the young – in order to save both lives and money.

The increase of cardiovascular diseases is linked in part to the aging of populations. According to United Nations projections, life expectancy is expected to reach at least 60 years by the year 2000 in the vast majority of developing countries. Studies have shown that when life expectancy increases, when deaths from infectious diseases decline, and when death rates drop to below about 15 per 1000 population, then diseases of the heart and arteries become major problems. Such is the case in an increasing number of developing countries.

The rise in cardiovascular diseases is also linked to life-style. Yet, according to a report by the World

A consultation in Jamaica. In the developing countries of the Americas heart diseases are on the increase.

Bank, "few countries encourage low fat, low cholesterol, low salt diets; indeed few countries have a national nutritional policy of any kind." And exercise and fitness are not routinely encouraged in schools and places of work. Even worse, physicians in developing countries remain oriented towards acute care, rather than preventive care, the report says.

MONICA – a WHO ten-year project

In 1985, WHO launched a ten-year project called MONICA – a name derived from combining and shortening two words "monitoring" and "cardiovascular" – to help the public health authorities determine whether prevention programmes are successful or not. One of the largest research projects ever undertaken, MONICA follows the trends in populations between the ages of 25 and 64 years in 26 countries through a network of 39 centres. Each centre keeps track of some 1200 people who are representative of a total population of 15 million. The results so far show the presence of mortality differences by sex and race, and geographically between East and West, North and South, as well as within countries. For instance, in France there are differences between populations studied in Lille, Strasbourg and Toulouse. Mortality rates in Toulouse were lowest because, according to the experts, the diet there is higher in oils, polyunsaturated fats, vegetables and fruit, and lower in lipids of animal origin and saturated fats.

Increasing exercise and adopting a balanced diet

Results show that among the populations studied, the least number of obese men and women are in Beijing, China (3%), Gothenberg, Sweden (7%), and Auckland, New Zealand (8%). The fattest males were found in Malta (25% obese), followed by Bas-Rhin in eastern France and Kaunas, Lithuania (each with 22%). The plumpest females were found in Kaunas (45%), Novosibirsk in Siberia, Russian Federation (43%), and Malta (41%). However, overweight was a characteristic of almost all the populations studied, thus pointing to the need to change unhealthy lifestyles by increasing exercise and adopting a balanced diet.

Nutrition education helps to combat heart diseases.

Among other WHO projects under way to prevent and control cardiovascular diseases are the following:

- CARDIAC (Cardiovascular Diseases and Alimentary Comparisons), a study in 22 developed and developing countries. The major aim is to determine the link between diets and high blood pressure. It is directed by the WHO Collaborating Centre at Shimane University, Izumo, Japan.
- PEP (Patient Education Project), involving eight countries, whose major aim is to educate family doctors and nurses in methods of teaching patients with high blood pressure how to manage their condition. The World Hypertension League is a partner in the project.
- PBDAY (Patho-Biological Determinations of Atherosclerosis in Youth), a five-year study carried out through 20 centres in 16 areas of the world, whose major aim is to determine how atherosclerosis develops, by studying the clogging of arteries in the young.
- The Global Cardiovascular Diseases Monitoring and Prevention Project, a recently established network comprising sites in developing countries linked to the MONICA sites, aims to assist these nations develop skills to carry out programmes of prevention.
- Programme on Prevention of Rheumatic Fever and Rheumatic Heart Disease, a project in developing countries, aims to reduce the number of cases and deaths from these two diseases, whose victims are the young. The International Society and Federation of Cardiology is a partner in the project.

It is clear that only a strong commitment by countries to provide funds, equipment and personnel for programmes of prevention will avert the impending global epidemic of cardiovascular diseases. ■

Dr Ivan Gyarfas is Chief of the Cardiovascular Diseases Unit at the World Health Organization in Geneva.

Health through exercise – a law of nature

Jerry Morris & Michael Collins

Each person is the best judge of what kinds of exercise suit him or her. But exercise should be broadly encouraged by messages from public bodies.

Exercise gives a sense of well-being. It helps to prevent obesity and coronary heart disease. It helps old people to retain their independence.

Any kind of sensible activity is good for you. Exercise that is more vigorous than you are accustomed to improves the bodily processes and strengthens the heart, lungs, muscles, bones and joints.

Exercise sustained long enough to make you breathe harder than usual is particularly effective in helping to strengthen the heart. The oxygen drawn in is used by the arms and legs as they work. This happens in aerobics, walking, cycling, dancing, swimming, running, rowing, football, and many other forms of activity. By taking such exercise regularly and very gradually increasing its vigour you will improve your physical fitness and the health of your heart. As you become more active and healthy the exercise you take should cause you to breathe hard and sweat. This should happen at least twice a week and for at least twenty minutes each time. Protection against heart attacks is achieved at moderate levels of fitness; it is not necessary to reach your full potential in this respect. Remember, you can't store fitness. If you stop being active your fitness will rapidly decline.

Many people wish to exercise in groups. Your local library, town hall or leisure centre should be able to give you the addresses of athletic and other clubs where this can be done.

Encouraging people to be active ...

Each person is the best judge of what kinds of exercise suit him or her. But exercise should be broadly encouraged by messages from public bodies. Society should provide access to the country for city dwellers, safe walking routes and cycle lanes, swimming pools and recreational facilities. Various state sectors should collaborate in such endeavours. Leaving health promotion exclusively in the hands of health ministries is doomed to failure.

The amount of exercise taken by people in the developed countries has, on the whole, markedly declined during the twentieth century.

A cultural change is now needed, whereby a more sensible, life-enhancing regimen is established, with physical activity restored as an integral element of everyday living. Health workers can show the way but success requires an enormous effort by society in general. If progress in this area is not made now, the Third World will probably adopt the labour-saving technologies and the sedentary life-styles of the West and suffer increasingly from the diseases of affluence.

Doctors and nurses can be effective role models

Public education about exercise needs to be pervasive; leaflets and advertisements are not enough. The power of television could be more effectively harnessed. It is also necessary to

Practising Tai Chi in China – gymnastics for both the body and the soul

In many parts of the world, mechanization has taken the physical effort out of work

educate health workers themselves in personal and public issues. Health services should provide the encouragement and facilities for their own staffs to engage in regular exercise. Doctors and nurses can be effective role models for patients, but few actually are.

Exercise should be regarded not only as remedial for patients, but also as preventive, especially in groups at risk because of their physical characteristics or their exposure to stress: people over 65, the obese, single parents, some ethnic minorities, and people on low incomes. General practitioners could run programmes in association with their local health centres (see box).

... at work, school and play

In developing countries, much manual labour is still performed. Those involved have little or no need of physical exercise in their leisure time. As mechanization proceeds, however, increasing numbers of people are becoming relatively inactive. Many firms in developed countries, recognizing the value of a healthy work force, provide their employees with sports facilities. It is to be hoped that similar action will be taken in the developing countries. Another possibility is to take exercise on the way to and from work by, for example, walking, running or cycling instead of travelling by car; thoughtful town planning can encourage such activity.

In the United Kingdom, 70% of the exercise that is vigorous enough to benefit the heart is taken through sport. Sport can produce muscle, joint and bone injuries but, played sensibly, it is undoubtedly advantageous. Sports and athletics clubs tend to create a commitment to exercise in their members which isolated individuals would find difficult to develop.

Exercise and sport should be encouraged in primary schools, where specially trained teachers should organize suitable games. Play activities can be centred around exercise schemes for even younger children. In secondary schools a wide range of sporting skills and interests should be promoted. It would be cost-effective to make available the facilities in schools and colleges for use by the community for sporting and other purposes outside school hours. Unfortunately, schools and sports facilities continue to be built as separate entities in many countries.

Improving access makes participation higher

Adults should have access to a wide range of sporting facilities at affordable cost. In western Europe the cost of subsidizing public facilities is being questioned on the ground that only a minority use them. Yet in Belfast, where provision is high and charges are low, participation is higher than in the rest of the United Kingdom.

Schools, voluntary centres, adult education classes, public leisure services and commercial centres should devise programmes for specific groups of people, bearing in mind the best times of day, styles and activities for each. We should not forget the people in prisons, hospitals and other institutions where exercise and sport may be therapeutic and an important part of social relationships. Again, of course, trained staff are required.

Humans evolved as highly active individuals. Today, many people are not meeting the evolutionary requirement of regular vigorous exercise, and consequently their health is suffering. For the good of the species and the individual it is vital that high levels of physical activity be encouraged throughout society. ■

Health-promoting activities at Princes Park Health Centre, Liverpool, United Kingdom

- Women-only swimming sessions
- Courses on heart care
- Relaxation/exercise/diet/stress management for:
  - young mothers
  - smokers
  - elderly people
  - well women
- Fun runs
- Sport and health excursions
- Small grants made to local groups
- Provision of information on fitness.

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Don't be fooled by tobacco

Paul Wangai

"Doctor, it happened in the middle of a dance floor!" Ken told me. "I have had no major illness in the past. But the chest pain ... so sudden! So painful! It really scared the daylights out of me. Am I going to die? You know, I am engaged to be married on the 20th of next month. Nothing should spoil this great day!"

Ken is 32 years old and smokes two packs of cigarettes a day. He was introduced to smoking by a friend at the age of 11 and has been a regular smoker ever since. A number of times, I have urged him to give up the habit. He tells me he will do so one day but that day has not yet come.

When he walked into my clinic he was visibly shaken and very scared. He thinks something is very wrong. And he is right: it is serious. Last night when he had this very sharp chest pain he stopped dancing and sat down. His fiancée was shocked, and the dance literally stopped. Ken was so embarrassed. He had just experienced a mild heart attack. He went to a dispensary and got some medicines, then went home to rest.

A thorough examination and an electrocardiogram test showed clearly that my friend Ken has poor heart health. I explained the facts to him. The heart is a wonderful pump of blood. It pumps and pumps and pumps – non-stop until we die. When young people say: "I love you with ***all my heart***", this is not really true. You can't love with a heart. It is not a seat of emotion. It is simply a pump of blood.

In severe attacks, it is unable to pump enough blood to the rest of the body and death occurs. Or, if the person survives, he or she is often left with permanent damage to the heart muscle. This restricts activity, as even slight physical exertion will bring about severe chest pain.

In a mild attack, like Ken's, the damage is not so severe. The blood and oxygen supply was sufficiently reduced to cause problems, but did not stop completely as in a severe attack. Ken is lucky, he has a second chance. Not everyone is so fortunate.

Smoking causes heart attacks

It is quite clearly established that cigarette smokers have a 70% greater chance of developing coronary heart disease than persons who don't smoke. Smoking is one of the important risk factors for such a heart attack. It reduces the amount of available oxygen in the blood, causing the heart to work harder. Carbon monoxide in cigarette smoke damages the vessel wall from the inside, making it rough and therefore ready for fatty deposits to lodge there. The cigarette's poisons also increase the heart beat. The degree of risk to the heart and circulatory system is related to the number of cigarettes smoked daily and for how many years – and whether one inhales or not.

Furthermore, the smoke's poisons cause the red blood cells to stick together, forming clumps that are unable to pass through the smallest blood vessels, again reducing the blood and oxygen supply.

Smoking does not give power

Like most young people in developing countries, Ken started smoking at an early age, and it became a habit that is hard to quit. I remember when I took my first and last cigarette. All the boys in my class smoked in the toilets during break time. "When you smoke you become a real man", they told me. "Where there is smoke, there is fire; where there is fire, there is power." I wanted to have power, so I puffed.

What a lie! Tobacco actually destroys the body's engine, the heart pump.

In fact, 40% of heavy smokers now aged 35 years will die before reaching the age of 65, compared with only 15% of nonsmokers. Three or four out of every ten smokers will die prematurely as a result of their habit. It has been estimated that each cigarette takes 9½ minutes from the life of the average smoker.

In the developed countries, the numbers of male smokers are decreasing rapidly, while in the developing countries they are increasing. Women, on the other hand, are smoking more, everywhere. The smoking rates in the developed countries are decreasing by 1.5% a year, whereas they are increasing by 2% a year in the developing countries. Per capita cigarette consumption in Latin America increased by 24% between 1970 and 1980. In North America the increase was only 4% and in Africa about 30%.

Young people need to be protected

About 30% of young people aged 10 to 29 years smoke in developing countries. Many of these will end up as hardened tobacco addicts. This is a worrying feature, considering that the future of our developing nations lies with our young people. Youth is our most valuable asset.

In my home country, Kenya, we know that our accomplishments in national and international athletic events are performed by nonsmoking young people. Smoking just doesn't mix well with sports. Top athletes like Kipchoge Keino, Moses Rono and Paul Ereng do not use tobacco.

The false lure of the tobacco industry

The tobacco industry would like us to believe that they assist the economy of Third World countries. This is supposed to be in the form of income and revenue to the state coffers, and payments to farmers and workers in the tobacco industry. The facts hardly bear this out.

For one thing, the amount of money used to compensate for the effects of tobacco use (as a result of illness and death) is some three times more than the amount of revenue and income to tobacco workers. Secondly, deforestation is a big problem. Curing the tobacco over wood fires calls for the widespread felling of trees, which is a prelude to soil erosion and desertification. Finally, much of the profits from tobacco sales is sent to wealthy developed countries and does not benefit the tobacco-growing countries.

In reality, we are being fooled by the tobacco industry. Unable to promote tobacco use in the developed world, the manufacturers have a free hand in doing so in the developing countries. Their advertising claims that smoking helps performance in sports and gives the impression that to be successful means to smoke; after all, successful "westerners" smoke, they claim. These messages are inaccurate, false and unethical.

The situation echoes the words of U.S. Senator Robert Kennedy when he opened the first world conference on smoking and health in 1967. He said: "The cigarette industry is peddling a deadly weapon; it is dealing in people's lives for financial gain."

How true those words are! Is it not time we ceased to encourage this deadly habit, for our heart's sake? ***If you smoke, quit. If you don't smoke, don't start!*** Your heart will be better off without tobacco. ■

Young people are willing to learn. Make sure they get the message that smoking is bad for the heart and causes cancer.

Tobacco control

Kenya has embarked on various ways to help young people get the message: If you want to have a good strong heart – don't smoke. Some of these are:

1. Banning tobacco advertising and promotion – including sports sponsorship;
2. Rotating a variety of health warnings on cigarette packs;
3. Increasing tobacco taxation;
4. Banning the sale of cigarettes to children;
5. Banning smoking in public places and transport;
6. Replacing tobacco by crops which contribute to the economic and social health of the community;
7. Including tobacco messages in health education and school educational curricula;
8. Arranging smoking cessation programmes;
9. Enacting legislation to curb smoking.

Dr Paul Wangai Jr is Director of Medicare Wellness Centre(s) Limited, P.O. Box 62610, Nairobi, Kenya.

A van full of bikes

Sarah Saarberg

Cycling – another good exercise for staying in good form.

More than 100 000 people have used the white bicycle in the past 12 years in the Netherlands, cycling millions of kilometres

Bicycles are one of the main features that strike tourists when they come to the Netherlands, along with wooden clogs, cheese and windmills. The number of cyclists in Holland is unbelievable: nine out of ten people own a bike. This, and the fact that cycling is an extremely healthy way of getting physical exercise, lay behind the idea of the Ride-a-Bike Promotion Van.

This is a big, white goods vehicle containing 72 – equally white – bicycles. In the Netherlands, if a bicycle is painted white this signifies that it is for communal use. The bikes are a standard model without gears or crossbar. Unlike the usual models, the saddle and the handle bars can be readily adjusted making them suitable for both youngsters and adults.

Businesses, institutions, associations, local authorities and also private individuals can put in a request to hire the bike van for a day at a small fee. The only condition is that a minimum of 50 bicycles have to be used. Although nobody makes a point of it, events which have a health- or cycling-related theme are given a little preference.

Tremendous success

The van first went into action 12 years ago, as an initiative of the Netherlands Heart Foundation and the Royal Dutch Touring Club. The touring club has its hands full operating the Ride-a-Bike Van. "We are booked up from mid-March to mid-September" said Mr A. V. Melchior, head of Public Relations and Information at the club headquarters in The Hague. "The success is tremendous. We have many more applications than we can deal with."

More than 100 000 people have used the white bicycles in the past 12 years, cycling millions of kilometres. Replacement of the 72 bikes by the Netherlands Heart Foundation every three years is therefore no luxury but a must. "We do it every time with great pleasure," stressed Mr J.C. van Deth, director of the Netherlands Heart Foundation. "Like the Touring Club, we have been surprised in the past years at the success of the project. Our volunteers, the Friends of the Netherlands Heart Foundation, make a major contribution in promoting the Ride-a-Bike Van. As soon as there is an event where the van could be used, we frequently get a signal from our volunteers."

The van is, of course, an extension of the objective of the Foundation. "Lack of exercise can be regarded as one of the factors increasing the risk of heart and vascular diseases," says Mr van Deth. "That's why we do everything we can to encourage people to take more exercise. The exercise doesn't have to be strenuous; a day out cycling is also extremely healthy. And the chances are that anybody getting on a bike will get to like it and will use the bike more often in the future."

It's fun, it's healthy

The head of personnel of a major Dutch company comments: "Until a few years ago our staff parties were synonymous with eating and drinking. Great fun but not really very healthy. Then we heard about the Ride-a-Bike Promotion Van. Since then our annual staff party has become a sportive event. Everybody, from the managing director to the telephone operator, enthusiastically jumps on a bike for a trip which is great fun and healthy at the same time."

The success of the Ride-a-Bike Van has led to it being used for a second purpose. It can now be deployed as a fitness test van. The sides of the van are lowered, creating a kind of work-out area with exercise machines coupled to a computer, enabling various fitness tests to be performed. These tests are carried out by specially trained staff from the Sports Activity Organization.

This dual purpose use is doubly advantageous for the Heart Foundation. First of all participants are confronted with a report on how fit they are, and then they are offered the opportunity of immediately doing something about it by going on a cycling trip on one of the white bikes. ■

Miss Sarah Saarberg is an official of the Dutch Heart Foundation, Post Office Box 300, 2501 CH The Hague, Netherlands.

WORD GAME

Rearrange the ***letters*** shown in the second column to form a ***word*** which has the same meaning as the ***description*** in the first column. You will find the correct answers on page 31.

1. Heart attack	CRAINTONIF
2. Brain attack	KORTES
3. Pathways to the heart	SNIVE
4. The oldest heart drug?	SATIGILID
5. A main road from the heart	TEARRY
6. High blood pressure	PHENIOSENTRY
7. Heart disease of unknown origin	CYOROPHADAMITY
8. Know its level in your blood	HOTOLLERCES
9. Best exercise for young and old	KWIGLAN
10. The rhythm of health	BREATHATE
11. WHO has banned it!	COBCOAT
12. A muscle that never rests	ATHER
13. It's bad for you – get moving!	CYNAVITITI
14. Dilatation of artery	MAURENSY
15. Should be healthy throughout life	TINNITOUR
16. Often damaged by rheumatic fever	SAVELV
17. Not a good fat	AUDRATEST
18. Another main road from the heart	ORYOCARN
19. A heart chamber	TRIVLENCE
20. Another heart chamber	CRUELIA

Contributed by Marylane Watson, WHO

The whole family can take up cycling as a pleasant form of recreation

The menace of high blood pressure

Thomas Strasser

Complications of hypertension, namely stroke, heart attacks, and heart and renal failure, are declining. Today's message is: know your blood pressure, and if it's high, have it treated.

In February 1944 three men met in Yalta to discuss the possible partition of power after the Second World War. Roosevelt had high blood pressure and a failing heart and died of a stroke a few weeks after the conference. Stalin was apparently in good health, yet eight years later he also died of a stroke. Churchill died in 1965, having reached the age of 91 despite all the cigars he smoked. One can only speculate on the course that history might have taken had Roosevelt and Stalin lived longer.

The tragic effects of high blood pressure in hundreds of millions of ordinary people, on the other hand, are beyond dispute. Persons with high blood pressure run the risk of heart and kidney failure, heart attacks and, particularly, strokes caused by the bursting or blocking of a blood vessel in the brain.

In most parts of the world, 10% to 20% of adults have high blood pressure. Of course, not everybody with the condition becomes seriously ill, but the higher the pressure and the longer it is elevated the more likely it is that disease will occur. Consequently, treatment aimed at reducing high blood pressure is very important.

What a relief! "Blood pressure normal" is good news for your heart.

Measure more than once

The indirect measurement of arterial blood pressure is simple and painless. An instrument called a sphygmomanometer is used, and the procedure involves wrapping a cuff round the subject's arm and listening to sounds from an artery by means of a stethoscope. Two values are obtained, the higher being called the systolic pressure and the lower the diastolic pressure and both are important. However, cases occur quite often in which only the systolic or diastolic pressure is elevated, and they need special consideration.

Values up to 140 millimetres of mercury (mmHg) for systolic pressure and 90 mmHg for diastolic pressure are considered normal; values above 160 and 95 mmHg respectively are regarded as elevated. However, a diagnosis of high blood pressure should not rely on a single reading. The average of at least two measurements made on three or more occasions, with the subject completely at rest, should be calculated before an individual is assessed as having high blood pressure (hypertension). This is very important because brief elevations of blood pressure frequently occur.

Complications are lurking

The risk of complications is much greater with larger elevations of blood pressure. Just as a fast and careless driver is more likely to have a road

accident than a prudent one, a person with high blood pressure is more likely to suffer a stroke or heart attack than someone with normal blood pressure. Fortunately, however, by no means all individuals with high blood pressure develop such severe disease.

Some studies show that among men aged 50 whose systolic blood pressure is 180 mmHg or more, one in 100 can be expected to suffer a stroke within eight years. At first sight this may not seem remarkable, but among men of the same age who have normal blood pressure the corresponding rate is only one in 1000; in other words the relative risk for the individual with high blood pressure is ten times that of the normal individual. Approximately seven in 100 men aged 50 with the same elevated blood pressure can be expected to have a heart attack within six years, whereas only three in 100 men of this age with normal blood pressure are likely to do so.

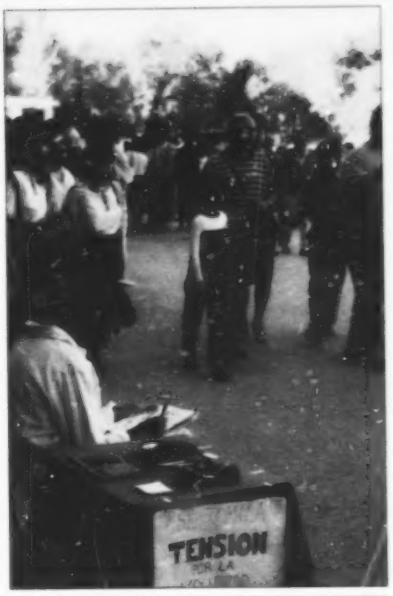
Other risk factors

It should be noted that high blood pressure is not the only risk factor for heart attack. A smoker with high levels of blood fats and high blood pressure is seven times more likely to have a heart attack than a person without these risk factors. As for stroke, the risk is almost 15 times higher in the smoker with high blood fats and high blood pressure.

The message clearly is that an individual with all these risk factors should try to stop smoking, diminish fat consumption and lower his or her blood pressure. The latter can be achieved by weight control, moderation in the intake of salt and alcohol, and increased physical activity. If these measures are insufficient, drugs can be used to reduce the blood pressure; over 100 chemically different medicines are effective in this respect, and some of them are inexpensive.

Happily, the occurrence of complications of hypertension, namely stroke, heart attacks, and heart and renal failure, has been declining in a number of countries during recent decades. Some 20 years ago the health education slogan regarding high blood pressure was: "Beware of the silent killer!" ("silent" because high blood pressure itself is symptomless). Today's message is: "Know your blood pressure – if it's high, have it treated". ■

Dr Thomas Strasser is Secretary-General of the World Hypertension League, 20 avenue du Bouchet, 1209 Geneva, Switzerland.



The Spanish health services ran a campaign to alert everyone to the value of checking their blood pressure.

Reducing the risk of a heart attack

The heart muscle is supplied with its blood through the two coronary arteries, which come off the main blood vessel of the body, called the aorta.

If one of these arteries becomes blocked the blood supply to a part of the heart is cut off. This interferes with its normal action and causes pain (angina). The arteries may be blocked by one or more processes. Furring up or atheroma may develop over many years until one of the arteries is more or less completely obstructed and angina or a heart attack results. Another possibility is that a blood clot or thrombus may form in one of the arteries and block it very suddenly, often in a position where it is already affected by atheroma. Obstruction can also be caused by a splitting of the arterial wall.

Can heart attacks be prevented?

Our knowledge of the causes of heart attacks is still incomplete. Consequently, complete protection cannot be guaranteed. However we know enough to be able to give practical advice on reducing the risk that heart attacks will occur.

- Smoking should be avoided.
- Dietary fat should be restricted, especially that obtained from animal sources.
- The blood pressure should be monitored and, if it is elevated, treatment should be given to lower it. Restriction of dietary salt is recommended for patients with high blood pressure.
- Obesity should be avoided, especially in early and middle life.
- Regular physical exercise is desirable within the individual's capacity. Walking and swimming are two examples of appropriate activities.
- In women the use of oral contraceptives should be reviewed from time to time. They present virtually no danger for healthy young women. There are grounds for considering other methods of contraception in women over 35 who smoke. Other methods are also to be preferred in women with certain medical conditions, especially diabetes and high blood pressure, and in those with a family history of heart attack.

Adapted from **Reducing the risk of a heart attack**, *a brochure published by British Heart Foundation, 14 Fitzharding Street, London W1H 4DH, England.*

Pages 14-18 Omitted

Public policy for sound hearts

Pekka Puska

Heart disease is rife in the industrialized world and a rapidly growing problem in developing countries. The main causes are smoking, too much fat in the blood, insufficient exercise and elevated blood pressure.

Prevention is, in principle, easy. If the risk factors were eliminated and healthy life-styles were adopted, premature heart disease would be rare and people would live longer and enjoy a better quality of life.

Heart disease is not an inevitable burden of mankind. It is very much a consequence of certain life-styles, often associated with material wealth. How can these life-styles be improved? Obviously, governments cannot control people's behaviour. People are largely responsible for their own health yet they are not entirely free or able to make the best possible decisions.

People can choose better when informed

People can choose wisely only if well informed. Knowledge about the causes of heart disease is relatively new and diffuses slowly. Millions of people are affected by heart disease and other chronic conditions because of a lack of information about risk factors.

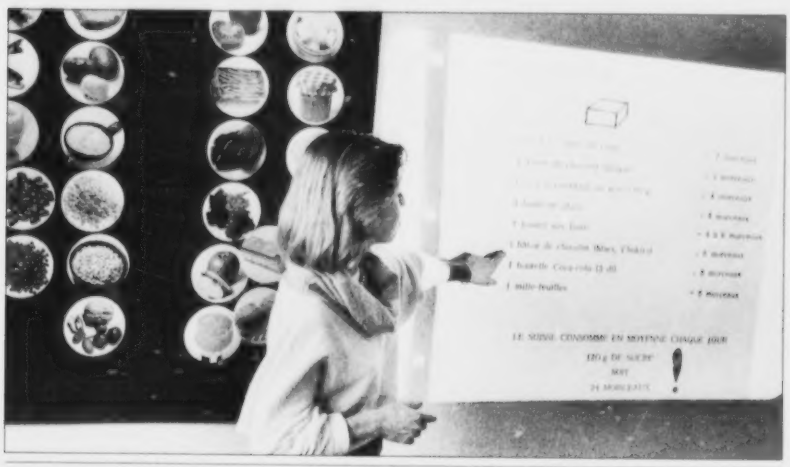
In today's world, information on risk factors and healthy choices should be a fundamental human right. It is a major responsibility of governments to ensure that people are knowledgeable about these matters. Particular attention should be given to children and adolescents in schools: it is as important to learn how to stay healthy as it is to study academic subjects. Well-organized national health education systems are essential.

What is required is not only information on what causes heart disease but also practical guidance: people should be taught how to adopt healthy life-styles, what food to buy, how to prepare meals, and so on.

Make healthy choices possible

Unfortunately, healthy choices may not be readily available for reasons of time or finance, and major cultural and social factors often have an influence.

People's life-styles are a matter of both culture and practical possibilities. It may be difficult for a person to make major changes in life-style if corresponding ones do not take place in the community and, indeed, in society as a whole.



The choices people make depend on the quality of the information they are given

Successful programmes for the prevention of heart disease, such as that which began in 1972 in North Karelia, Finland, are based on comprehensive community intervention. This means that an attempt is made to change not just individuals but the whole community, with many of its social and environmental factors.

Certain decisions and actions are needed from governments so that healthy choices are readily available. People have their own responsibilities and can make their own choices, but governments should ensure that the choices made are informed ones and that healthy life-styles are attainable.

Action on all fronts

Health services should be concerned with the prevention as well as the treatment of heart disease. There should be periodic measurements of risk factors and appropriate counselling. People should have regular check-ups so that action can be taken in good time if necessary.

The adoption of a healthy life-style does not necessarily have the measurement of risk factors as a prerequisite, although this may well be useful, as with the detection of elevated blood pressure. If they have access to reliable information and support, people can choose life-styles that exclude or diminish risk factors.

Comprehensive measures are needed in many areas; in other words, intersectoral action is required.

Proper nutrition is vital, and agricultural policy should therefore aim to give healthy choices of food. In Finland, moves were made to reduce the output of dairy produce, with its high content of animal fat, and to encourage the production of rapeseed oil and berries. The food industry should be encouraged to develop and market healthy products. Public health education can lead to increasing

demand from consumers for such produce. Governments should legislate for proper food labelling so that consumers can know what they are buying.

Many countries have passed laws to combat smoking. The aim is to help people not to take up the habit and to encourage smokers to give it up. Legislation protecting nonsmokers' rights to clean air has also proliferated. The banning of tobacco advertisements is an important plank in prohealth campaigns. Given the immensely deleterious effects of tobacco, it is justifiable to keep its price high through taxation, thereby discouraging its use, especially by the young. Many countries, among them Finland, use a proportion of the revenue derived from tobacco in antismoking programmes and research.

As regular physical activity is good for the heart it should be encouraged by the provision of pavements, cycle tracks, parks and sports grounds. Stairways should be attractively designed with a view to persuading people to use them rather than lifts and escalators.

Certain restrictive measures are undoubtedly effective and should be applied, such as smoking bans and heavy taxes on tobacco. However, the greatest possible effort should go into the promotion of nonsmoking, physical activity and healthy food. Voluntary organizations concerned with positive action, such as sports clubs, play an important role and should receive strong public support.

Politicians are very sensitive to what voters think. In the long run, therefore, the most effective way to persuade governments to adopt sound policies on health is for people's organizations and pressure groups to demand the changes required. ■

Professor Pekka Puska, who is Director of the North Karelia project, is Director of the Department of Epidemiology in the National Public Health Institute, Mannerheimintie 166, 00280 Helsinki 28, Finland.

High technology – some examples

Heart transplant

In December 1967, the news that South Africa's Dr Christian Barnard had transplanted a heart made headlines around the world. It was the first time that a heart taken from a deceased person successfully replaced the sick heart of a living person. Since then, heart transplants have become routine in a number of highly specialized hospitals in the industrialized world. Heart transplantation, however, is not the answer to heart disease: the operation is costly and – above all – there will never be enough heart "donors" to satisfy the demand. In 1989, 2437 heart transplants were performed worldwide.

Coronary bypass

When the coronary arteries are obstructed, chest pain – called angina pectoris – can occur or, worse, a heart attack that could damage part of the heart muscle. Surgery may be needed to bypass the blockage. A blood vessel taken from the leg or the chest is sewn directly onto the aorta and attached to the coronary artery beyond the obstruction. Bypass surgery does not necessarily prolong life, but most of the time it improves the quality of life by allowing normal physical activity. Although bypass surgery is relatively common in many countries, it is costly and is thus for the privileged few. The average cost per case for bypass surgery and follow-up over five years was US$ 32 465 (in 1986 US$).

Pacemaker

When the node which acts as a natural pacemaker is damaged, the normal rhythm of the heart may be disturbed: it may beat too slowly, too quickly, or irregularly. Battery-driven artificial pacemakers, placed under the skin on the chest and connected to the heart with short electrodes (electrical wires), can be used to stimulate the contraction of the heart muscle at a regular rate.
A word of caution: persons wearing a pacemaker should never pass through the metal detection machines in airports and elsewhere because they can disrupt the functioning of the pacemaker.

WHO Interview

Let music soothe your heart

Heikki Sarmanto, the internationally known pianist and composer, has dedicated a jazz symphony to WHO. He was interviewed by ***World Health.***

Mr Sarmanto, can you tell us how you came to write a jazz symphony on the heart and to dedicate it to WHO?

The idea originated from a Finnish cardiologist who had worked for WHO. I was contacted, told that heart health had been selected as the theme for World Health Day in 1992, and asked if I would be interested. Of course I was. It's a challenge to compose a piece of music that captures the essence of our heart – the centre of our being, of our life. It's fantastic to use music in describing this phenomenon called heart, because heart has so many meanings: medical, poetical, and others.

The heart has surprises. Sometimes it goes too fast, sometimes its beat is irregular, but life itself is like that. The heart symbolizes all of life

What kind of music have you created to portray the heart?

A mixture of classical, jazz, and ethnic music from Latin America, Africa, and northern folklore. It's a kind of world music, symbolizing WHO. It's a symphonic piece, about 45 minutes in duration, but not a symphony in the traditional sense. It is written for a full symphony orchestra plus a jazz ensemble. It needs musicians who can improvise: drummers and players of percussion instruments of all kinds.

How do you express the heart in its many different moods?

The heart has surprises. Sometimes it goes too fast, sometimes its beat is irregular, but life itself is like that. The heart symbolizes all of life. In my music, I attempt to find a physical and a mental balance that leads to heart health and happiness. The planet is in constant chaos, so a musician has an obligation to express the need for balance and harmony, first in an individual's heart and then in the world. There is a melody in the symphony that I gave to a lyricist to put into words. It is called "Open up your heart". All of us should really open up our hearts to one another and, by understanding the difference in cultures, races and religions, make the world better. Maybe this sounds a little naïve, but I think I will always be an optimist.

The World Health Day slogan for 1992 is "Heartbeat: the rhythm of health". Exercise is a part of that beat. Do you exercise – now and then, or daily?

I am a confirmed cyclist. I don't own a car or have a driver's licence, I just cycle or walk instead. And for pleasure I run, swim, and ski.

I presume you don't have heart problems?

Most of the time my heart is happy; although it is unhappy sometimes, it is not afflicted by the kind of problems you have in mind. A happy heart is the first step to a healthy heart. If you are unhappy and sad, you don't take care of yourself physically or mentally.

So there is a message in your music?

Exactly, open up your heart, look at the world and the people around you. It is much easier nowadays to be in touch with people in the next street, the next town, even the next country. Earlier generations didn't have the advantage of modern communications, so let's get to know each other better.

Do you see music as therapy?

What we hear is food for our heart and soul. Our ears are extremely sensitive and unpleasant sounds can affect our physical well-being, whereas music helps us to relax and unwind. It is also an essential accompaniment to many leisure-time activities.

How should we listen to your symphony?

Just let the melody sink in and have its own effect on your mind. I don't think that it is necessary to be analytical or intellectual, or to try to understand every note you hear. Music is mainly emotions and associations conjured up by sound that produces all kinds of feelings, and as many positive feelings as is possible. Let music soothe your heart. ■

Heikki Sarmanto trained at the Sibelius Academy, Helsinki, and the Berklee College of Music, Boston, Massachusetts, USA. He was named Finnish Jazz Musician of the Year in 1970. He has won prizes in piano and ensemble categories at the Montreux Jazz Festival in Switzerland.

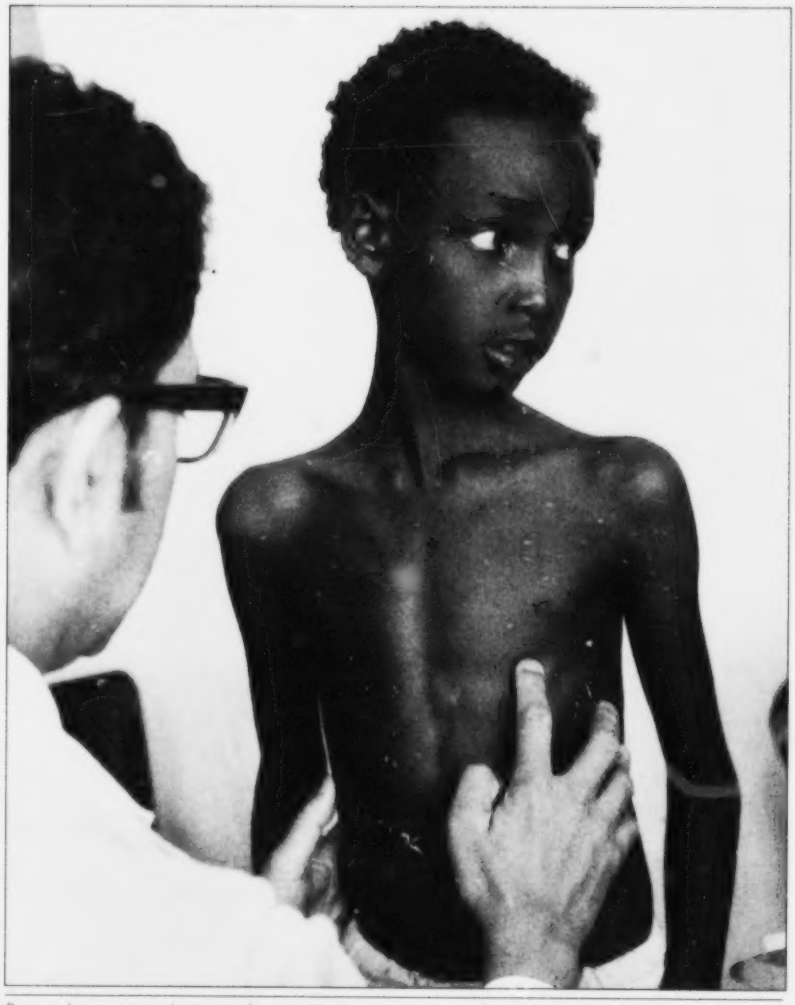
Among his works, "*Suomi*" (Finland) was performed in January 1988 at Carnegie Hall by the New York Pops Orchestra and in June 1991 his latest composition, "*Perfect Harmony*", a suite for mixed choir and jazz ensemble, was premiered in Kuopio. He has dedicated a jazz symphony to WHO, inspired by the theme "*Heartbeat – the rhythm of health.*"

Mr Sarmanto's address is Kankurinkatu 8 B 14, 00150 Helsinki, Finland.

So that young hearts may thrive . . .

Aloyzio Achutti

Any campaign aimed at achieving populations with healthy hearts should be based on the well-being of the young



Research into acute rheumatic fever in Kenya.

About 1% of newborns have congenital heart malformations, half of them requiring surgery to give a chance of survival. Three signs may tell parents that something is wrong with an infant's circulatory system: a bluish colour of the skin and mucous membranes, breathlessness, and failure to thrive. The use of medicines may be beneficial but, in general, surgical repair is needed. Some operations can restore normal circulation; even a partial solution does not preclude a long life.

Many congenital malformations of the heart are without symptoms and may only be discovered if an abnormal heart murmur is detected during a routine medical examination. Chagas disease in the Americas, and viral infections and undernutrition throughout the world, can undermine the development of the young heart, sometimes with consequences that do not appear until later in life.

Sore throat? Decayed teeth?

One in five cases of sore throat in children can be caused by streptococcal bacteria, which, occasionally, also affect the joints, heart valves, and sometimes the brain. This condition, called rheumatic fever, can recur each time the individual is infected with similar bacteria, with the result that damage to the heart increases.

There is no vaccine to prevent rheumatic fever but early recognition and treatment of sore throat can stop the organic reaction and the spread of the pathogen from one child to another. The streptococci can be eliminated with a single intramuscular injection of long-acting benzathine penicillin. The same drug given monthly to individuals already affected by rheumatic fever can prevent the pathogen from becoming established in the upper respiratory tract. Physicians, schoolteachers and families should all collaborate in the fight against this disease. The International Society and Federation of Cardiology, WHO and UNESCO are making a common effort to control it in the developing countries, where it is still frequent.

Decayed teeth and infected gums can be another factor in severe heart disease. Bacteria that exist in the mouth may, during chewing or dental treatment, enter the bloodstream and come to rest in the heart, particularly

if the valves are affected by rheumatic fever or a congenital malformation. Thus, the maintenance of the teeth and gums in a healthy condition can be regarded as contributing to the prevention of heart disease. If it is known that there are valvular or other defects in the heart, adequate preventive measures can be taken during dental treatment.

Sound life-styles begin preferably early in life

The foundations for a healthy heart should be laid early in life. Above all it is important to preserve the integrity of arteries that carry blood to the developing organism. Myocardial infarction, high blood pressure and cerebrovascular diseases, major causes of death in many countries, are often attributable to blood vessel lesions that begin to develop in the young. Dietary excesses of animal fats or even of heat-processed oils extracted from plants, which are used in cooking, produce deposits on artery walls, thus narrowing the vessels and causing irregularities on their inner surfaces where blood can coagulate. Clots are formed in this way and there is then additional narrowing and obstruction of the flow. This morbid condition is worsened by smoking, high blood pressure, stress, or inadequate physical exercise.

Complications may develop more quickly in some families than in others for genetic reasons. In addition, it has to be remembered that habits acquired early in life with respect to diet, exercise and exposure to risk factors, are difficult to abandon later.

An examination of the health profile of a family may suggest the possibility of a genetic disposition to develop early heart or circulatory disease. If sudden death, myocardial infarction, high blood pressure, stroke or diabetes mellitus have occurred in parents, siblings or cousins before the age of 55, special attention should be given to diets low in cholesterol, fat, sugar and salt and to regular physical exercise. Smoking and passive smoking are dangerous. Where there is a familial tendency to develop atherosclerosis and high blood pressure, people should be particularly aware of the desirability of avoiding these conditions through positive action initiated in childhood.

This little Brazilian girl is recovering from a heart operation.

Just as it is difficult or impossible to reverse many degenerative biological processes, it is not easy to remove risk factors or change life-styles in adulthood. Cultural and social development is therefore essential to create a healthy and happy milieu with fewer risk factors, and more scope for systematic physical activity, good diet and general welfare.

Any campaign aimed at achieving populations with healthy hearts should be based on the well-being of the young. The alternative is to have to contend with widespread heart disease, impairment of health, and premature death. ■

Professor Aloyzio Achutti is Chairman of the Committee on Prevention of Rheumatic Fever and Rheumatic Heart Disease of the International Society and Federation of Cardiology. His address is Avenue Bastian No. 212, 90060 Pôrto Alegre RS, Brazil.

Action for healthy hearts

- Vaccinate all young girls against rubella (German measles).
- Ensure that pregnant women follow a prenatal care schedule.
- Protect pregnant women against infectious disease, alcohol, drugs, toxic substances, radiation and unnecessary medicines.
- Provide adequate paediatric care.
- Arrange for the examination of children with sore throat by a health worker, especially in the absence of cough, coryza, conjunctivitis or hoarseness.
- Arrange for the examination by a health worker of children with fever of over five days' duration, swollen joints, and unusual and uncontrollable movements of the extremities, since rheumatic fever may be present.
- Do not smoke in the presence of children.
- Maintain skin cleanliness to prevent cutaneous streptococcal infections.
- Protect against upper respiratory chest infection by avoiding close contact with infected people.
- Maintain oral and dental hygiene.
- Practise sport and other physical exercise in a systematic manner.
- Maintain an adequate balanced diet.
- Avoid stress – keep happy.

Ideas for action

For people who do heavy physical work, an average day's labour provides sufficient exercise. But for people in sedentary jobs, regular leisure-time exercise offers many health benefits.

To be fit you don't have to be able to finish a marathon race or develop a lot of muscles. Rather, you need to be of normal weight and to have enough flexibility, muscular strength and cardiovascular endurance to meet everyday demands. Most injuries, drop-outs and loss of motivation at the beginning of exercise programmes are caused by people doing too much, too soon, too fast and too hard.

There is no short cut to being fit. The duration and intensity of exercise should be built up slowly and regularly, over many months. The earlier you start, the better. And physical exercise should continue into old age; lifelong fitness requires lifelong regular exercise. People with limited mobility or health problems should practise specially adapted exercises.

Ideal exercise

How many times a week should we all take physical exercise, and for how long? The replies to these questions depend on a number of factors, including the length of a person's working day and his or her temperament and habits. People above the age of 40 need to choose carefully – sports that require sharp changes of rhythm or are fiercely competitive are inadvisable. From that age onwards, it's better to stop counting the seconds and minutes and scoring points; let the years do the counting instead!

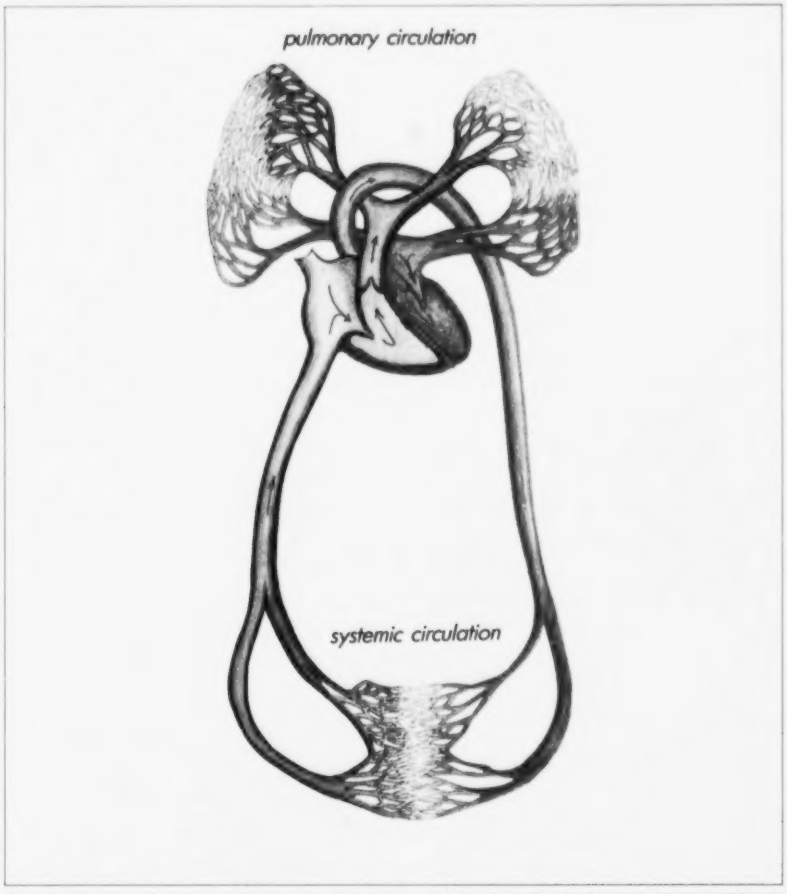
- Ideally exercise should be taken three or four times a week in sessions of at least half an hour.
- For those who prefer daily sessions, the length and the intensity can be slightly reduced.
- But don't be fooled into thinking that one lengthy and vigorous exercise session a week can compensate for several regularly spaced periods.

No money needed for walking

The best sports do not need a big financial outlay. Walking has a claim to be the most natural physical activity. It can be practised by almost everyone, at every age both in the town and in the countryside. It can also be easily integrated into daily life. Brisk walking every day makes a positive contribution to good health.

To be beneficial a walk should be quite long and certainly not less than 15 minutes. Whenever you can, walk instead of using a bus or car – and use

A walk in the countryside - a picture of health!



Blood circulation: the heart is a life-giving pump

the stairs instead of the lift!

In mountainous areas, walking calls for a much bigger effort because of the steeper gradients. Adopt a slower rhythm of walking so as not to waste effort. Train for longer walks.

Once you are capable of walking for an hour without tiring, you can start to practise running. To save your strength, make short spurts and then rest a while, relaxing your ankles and keeping them supple. Don't worry about your arms; their function is to balance your body, and you can just let them hang and move in a natural way.

Control your breathing. Breathe quite rapidly without changing your pace or the movement of your arms. Breathing in will take care of itself, but breathing out – to the full extent of your lungs – is more important. Don't try to imitate the breathing rhythms of champion runners; everybody has to find their own breathing pace, and no two people are the same. Adopt the pace that suits you.

A good yardstick – your heartbeat

Whatever sport you practise, don't overdo it and strain your heart.

Your safe maximum heartbeat during physical activity is arrived at by substracting your age from 220. For a person aged 40, for example, 180 heartbeats per minute is the theoretical limit (220 less 40 equals 180), but 80% of the maximum is better or, for that person, 144 beats a minute.

Take your heartbeat by pressing the first three fingers of your right hand on the inside of your left wrist, just below the bone running from your thumb. This should allow you to feel distinctly the beating of your heart in the artery which passes this point. Count your heartbeat for 30 seconds then multiply by two. A fifteen second count, though possible, is slightly less precise.

Fitness at work

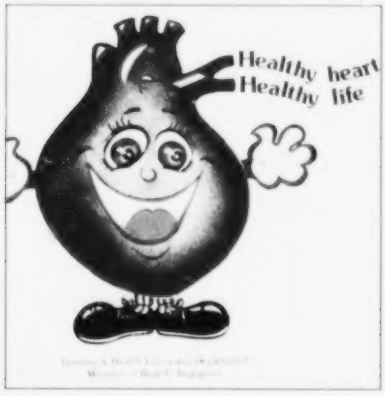
Are you sitting at a desk or standing in front of a machine most of the day? Do you have backache and neck pain? Do you feel stressed at work and need the stimulus of coffee and cigarettes? Are you often on sick leave for indefinable ills? Then the time has come to speak to your shop steward, your supervisor or boss, or your company's nurse or doctor about exercise at work. Ten minutes organized exercise at the workplace can release a lot of stress and strain, and muscular pains. Half an hour of jogging at lunchtime, preferably before eating, could give you renewed energy and a feeling of well-being. Aerobics and gymnastics sessions can be organized before or after work. And if your company is big enough, it might provide a gymnasium, a tennis court or even a swimming pool for staff. Managements which realize the value of physical exercise for staff health and morale do provide such facilities. It is good business too, since healthy and happy workers are more productive.

WHO provides showers and dressing rooms to staff at its Geneva headquarters. In addition, there are several flourishing sports groups linked to the WHO Staff Association. ■

Parts of this article were based on "Physical activity and sport without risk", a brochure by the French Federation of Cardiology and the National League of Sports. For a free copy (French only) write to: The French Federation of Cardiology, 50, rue du Rocher, 75008 Paris, France. Fax: (1) 43 87 98 12.

Sing along with Hearty

Yong Lik Sin & B. Vaithinathan



"Eating right is good for me.
It will make me grow.
When I eat the right food ...
I'll be tall ..."

"Be kind to yourself,
Don't puff till you choke.
Smoking gives coughs,
sick lungs, bad heart."

Children and adults together

These are familiar songs which primary schoolchildren in Singapore sing to a lively tune while dancing to the beat of the music. And they sing along with Hearty, a mascot first created in 1986 for the "Healthy heart, healthy life" programme, an attempt to reduce the risk factors for cardiovascular disease. It is an animated heart, created on the drawing board in the art room of the Training and Health Education Department of Singapore's Ministry of Health. Hearty shows everyone, children and adults, how to lead a healthy life-style.

When Singapore began to intensify its efforts for cardiovascular disease prevention in primary schools in the mid-1980s, one of the activities planned was to produce a set of textbooks for use during health education lessons in these schools. Hearty was chosen as the mascot to put across the "healthy heart, healthy life" message to children aged between 6 and 12.

Variety of learning materials

Today, three years after the programme was introduced, close to 67% of primary schoolchildren in Singapore are using the Heart Health package in their classrooms. It comprises six students' workbooks and six teachers' guides (one for each level in primary school), a teachers' reference book, audiovisual materials and parent education leaflets. These cover the major risk factors related to cardiovascular disease. No smoking, a balanced diet, regular exercise, and learning to relax are the principal messages promoted.

Besides straightforward facts on ways to keep the heart, lungs and blood vessels healthy, the children are exposed to a variety of learning activities, including songs, video shows, puzzles, games and experiments, carried out individually.

Parents are given leaflets which inform them what their children have learned at school, and suggest how to provide a home environment conducive to health and how to help their children to lead a healthy life-style.

The objective of the Heart Health package is to ensure that all students in Singapore's education system receive basic information on health and are encouraged to adopt healthful practices. The school is chosen as the ideal setting because there is a very low rate of primary school drop-outs in Singapore.

The package comes with simple yet comprehensive information and colourful illustrations, designed to appeal to the young students. Specific health messages are highlighted so as to encourage the practice of these behaviours from childhood onwards.

Healthy diet and "no" to smoking

On diet and nutrition, students learn about the size of food helpings and how to plan a menu for breakfast, lunch and dinner; how to select healthy snacks and avoid unhealthy ones; how to cut down on fat and salt consumption and increase intake of whole grains, fruits and vegetables; and how to maintain the right weight for height.

Saying "NO" to cigarettes is Hearty's message to students, to help them avoid being pressured by other children into experimenting with

Eat wisely, don't smoke, avoid stress: three key elements in keeping your heart healthy

smoking. They are shown how smoking harms the bodies of smokers, and how other people's smoke can harm nonsmokers.

To keep the heart and lungs fit, Hearty explains the need to exercise at least three times a week and shows how to do it; how to choose an exercise programme; ways of coping with stresses and strains by learning a relaxation technique; and how to make healthier choices.

To promote and generate fresh interest in the package, Hearty makes regular visits to schools. A local actor is employed to don a Hearty suit and visit schools with a health educator. Students respond enthusiastically to Hearty. They sing and dance along with him while learning more about what ensures a healthy heart.

Hearty brings home health messages

Information panels are also available for display in the schools. A common sight in schools is a "Hearty Health Fair" where students can read the simple and attractive information on exhibition panels, participate in a health quiz, and watch demonstrations on the effects of smoking or on making a healthy snack. Hearty is a frequent visitor, and parents are sometimes invited to these exhibitions as well to make sure that similar health messages are provided at home.

Teachers speak very favourably about the package, as it provides them with innovative ideas and materials to teach heart health, a topic which many people construed in the past as a purely medical subject to be taught only by medical personnel. Parents whose children do not use the package in the schools frequently purchase it to read together at home.

Good influence on students

The Heart Health package is evaluated annually. Though its overall influence on health attitude and practices has yet to be determined, there have already been significant improvements in knowledge about the risk factors for cardiovascular diseases. There is also some indication of changes in life-styles. Students who had been exposed to the Heart Health package were more likely not to smoke. Consumption of sugar, particularly by drinking sweetened drinks, was also less among students who were taught about Heart Health. ■

Ms Yong is Head of the School Health Education Unit, Training and Health Education Department, Ministry of Health, Hyderabad Road, Singapore 0511, and Dr B. Vaithinathan is Medical Director of the Department.

WHO in action

Painting out the kissing bug

Posse, Brazil:
In Posse, as in most parts of Latin America, the kissing bug is a feared pest of poorly constructed rural dwellings, where the insect makes itself at home in any tiny crack or fissure along the walls and ceilings. A night feeder attracted by carbon dioxide, the blood-thirsty bug drops to the beds of sleepers and plants its kissing sting on the victim's face or near the mouth.

But this kissing pest also goes by another name: the assassin bug. When it bites, it passes on a severe, disabling, and sometimes fatal disease, called Chagas disease after the Brazilian doctor who in 1909 first discovered its cause, the insect that transmitted the parasite and the clinical picture in a logical reasoning rarely paralleled in medical history.

According to WHO data, an estimated 16–18 million Latin Americans are currently infected with the parasite. In approximately 30% of these people, the infection will lead to severe and permanent damage to the heart, or oesophagus, colon, brain or nervous system. Though drugs and surgery can relieve some symptoms, young deaths from heart failure are common.

But now the inhabitants of Posse are going after the assassin with brushes and paint – a special insecticide-containing paint newly developed by the Federal University of Rio de Janeiro. The city's residents, the Brazilian Ministry of Health, the paint manufacturer, and the Federal University joined WHO in a large-scale project designed to find out if the paint could chase the bugs away. Of the 4800 houses painted during the project, a full 80% remained free of the bug two years later. And residents like their newly painted, bug-free quarters. Spraying houses with insecticides is unpleasant for residents, less effective, and must be repeated every six months – at a cost two and a half times greater than a coat of paint. Similar pilot projects are being carried out in Argentina, Bolivia, Chile, Honduras, Paraguay and Uruguay.

Chagas disease is only one of seven widespread, and often deadly, tropical diseases targeted for attack by the WHO Special Programme for Research and Training in Tropical Diseases. Funded by voluntary contributions, the Programme collaborates with hundreds of researchers and scientists throughout the world in an all-out effort to find ways of bringing these diseases under control, whether through the development of high-tech drugs and vaccines or the invention of ingenious, low-tech weapons – like the kiss-of-death paint that is chasing away the assassin bug. ■

AIDS – a threat to economic development

Bangkok, Thailand:
In October, financial and political leaders from around the world gathered in Bangkok for the annual meeting of the World Bank. They were told by Dr Michael H. Merson, Director of WHO's Global Programme on AIDS, that the AIDS pandemic "has become a major factor to be reckoned with in the world economy". He said, "All sectors of life are threatened, so is the development process itself."

Based on reports from countries, WHO regularly issues estimates of the total number of AIDS cases and HIV-infected persons in the world. Prospects are grim. Between 9 and 11 million people have already been infected with HIV, and about 1½ million have already developed the disease AIDS. The numbers are increasing rapidly: worldwide 5000 more people become infected with the virus daily, mostly through unprotected sexual intercourse. WHO is leading the global fight against AIDS. Dr Merson told the leaders gathered in Bangkok that prevention campaigns must receive top priority and full commitment from Government leaders at the highest level. That commitment must come now, he said. ■

Childhood killers on the run

New York, USA:
The woman on the stage at the UN's New York headquarters was the film actress Audrey Hepburn. The child, struggling in her arms as she gave him the precious drops of polio vaccine, was only one of the 100 million children being vaccinated each year against the six biggest childhood killers. The occasion: the solemn celebration of the success of the worldwide efforts to achieve the goals of the Expanded Programme on Immunization. The Programme has reached the impressive target of vaccinating 80% of the world's children against measles, diphtheria, whooping cough, tetanus, poliomyelitis, and tuberculosis.

Supported and guided by WHO, UNICEF and a vast coalition of governments, bilateral development agencies and nongovernmental organizations such as Rotary International, health workers around the world, in towns and townships, deserts and tropical jungles, tundras and high mountains, have given hundreds of millions of children the required doses of the vaccines since the Programme started some 14 years ago. At that time, less than 5% of the world's children were protected against these diseases.

Assisting at the ceremony, former US President Jimmy Carter said, "the success of the programme has proved the potential and effectiveness of the

WHO in action

United Nations." Dr Hiroshi Nakajima, the WHO Director-General, stressed that there was still much more to do. The new goal set by the Organization's governing body is to see 90% of the world's children fully immunized by the turn of the century. Other goals include the complete eradication of poliomyelitis,the elimination of neonatal tetanus and a dramatic reduction in measles, the most deadly of the six diseases.

To expedite these worthy tasks, WHO and its partners in the Children Vaccine Initiative are supporting the development of ever better and cheaper vaccines which could be given in fewer doses. While a full course of the existing vaccines costs less than US$1 per child, the expenses incurred in actually getting the vaccines to a child average some US$13. Vaccines requiring fewer contacts would thus stretch precious funds even further.

Scientists are already hard at work on the task, but a large infusion of money would speed up the process and help to introduce new and improved vaccines into the routine immunization programmes in the developing countries that need them most. ■

The water of happiness

Chaozhou City, China:
For many, clean water flowing at the turn of a tap is a standard fixture of civilized life. For others, like the women in Chaozhou City, China, just getting water to the house used to be an arduous chore. Most of the city's women had to spend an hour each day drawing and carrying water which, more often than not, was hardly fit to drink.

Then they became the privileged partners in a project, implemented with WHO support, to give their city clean water and better sanitation. Since they knew best, the women of Chaozhou advised their project partners on the choice of the water source, on where to place the water pipes and taps, on how to collect funds from the community, and on how to manage the water supply once completed. Some 218 work sites were soon bustling with activity – and one-third of the workers were women.

The results are impressive. About 60% of the city's population now has access to clean water. Water-borne diseases, such as dysentery, typhoid, and viral hepatitis, have dropped dramatically. And, perhaps best of all, many women have been liberated from the daily drudgery of walking for the water that now flows from taps. No wonder the women of Chaozhou have christened their new tap water the "water of happiness". ■

WHO on . . .

Pneumonia

Acute respiratory infections kill more than 4 million children under five each year. Most of these deaths are due to pneumonia, which can be prevented by early detection of clinical signs (chest indrawing, rapid breathing) and treatment with a low-priced antibiotic taken by mouth. Severe cases require hospitalization for treatment with antibiotics by injection and, in some cases, oxygen. Mothers should learn how to recognize the early signs and when and where to seek treatment. Effective treatment requires access to trained health workers who are adequately supplied with the essential antibiotics. Unfortunately there is widespread misuse of antibiotics in children with simple coughs or colds and widespread use of cough and cold remedies that are often useless or potentially dangerous. ■

Cholera

The cause of death in cholera patients is the loss of body water and salts owing to profuse watery diarrhoea. Treatment is simple: patients should drink large amounts of a solution of water, glucose and a mixture of various salts. The mixture of glucose and salts recommended by WHO is called Oral Rehydration Salts (ORS). When dissolved in water ORS solution can replace the water and salts that are lost, thus preventing serious dehydration. Up to 30% of cholera cases die in countries where such treatment is not available. Treatment of cholera should be given at a health facility by trained health workers. Persons who develop acute watery diarrhoea and cholera is suspected should be taken immediately to a health facility for treatment. Where this is done and oral rehydration is readily available, less than one in a hundred will die.

Intravenous fluids in drips are rarely needed and only for very severe cases. In selected serious cases, antibiotics such as tetracycline or doxycycline can be useful. Mass chemoprophylaxis or treatment of whole communities with antibiotics is of little or no use and does not prevent the spread of a cholera epidemic. ■

...and cholera vaccination

The cholera vaccine currently available, given by injection, confers only partial protection (not more than 50%) for a limited period, usually not exceeding 3-6 months. Such immunization gives a false sense of security to the health authorities and to the immunized persons, who are liable to neglect more effective preventive measures. In 1973 the requirement for presentation of a cholera vaccination certificate for travellers was deleted from the International Health Regulations and no country now requires that persons entering the country be immunized. New oral cholera vaccines are being developed, but none is yet ready for routine use. The most effective way to prevent cholera is to ensure that drinking water is safe, that food is prepared hygienically, and that human waste is disposed of safely. ■

Answers to word game on page 11

1. Infarction	11. Tobacco
2. Stroke	12. Heart
3. Veins	13. Inactivity
4. Digitalis	14. Aneurysm
5. Artery	15. Nutrition
6. Hypertension	16. Valves
7. Cardiomyopathy	17. Saturated
8. Cholesterol	18. Coronary
9. Walking	19. Ventricle
10. Heartbeat	20. Auricle

In the next issue

We live in a world in which great numbers of pharmaceutical firms, large and small, produce and market tens of thousands of drugs, many scarcely different from each other, and many intended for the treatment of the same disease.

The March-April issue of *World Health* discusses what is done to ensure the availability of essential drugs. ■

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